Mr. Evenden:

Reference is made to your letter of August 30 to Mr. W. J. Derrick, Custer National Forest, Billings. We have today sent Mr. Derrick a copy of the attached memo on the bark beetle situation in Devils Tower National Monument, Wyoming.

J. A. Beal 9/7

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FOREST INSECT INVESTIGATIONS

MEMORANDUM ON THE BARK BEETLE SITUATION IN DEVILS TOWER NATIONAL MONUMENT, WYOMING

By
L. G. Baumhofer
Associate Entomologist

Forest Insect Laboratory
Fort Collins, Colorado
August 14, 1937

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Forest Insect Laboratory,
Fort Collins, Colorado,
August 14, 1937.

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MEMORANDUM ON THE BARK BEETLE SITUATION
IN DEVILS TOWER NATIONAL MONUMENT, WYOMING.

On August 12, 1937, an examination was made of dying and dead ponderosa pine in Devils Tower National Monument, in northeastern Wyoming, in company with Jack Barrows from the Regional Park Service office, and Newell Joiner, Custodian of the Monument.

Groups and individual trees, from pole to mature size, were killed last season at various points in the area. This spring a number of valuable mature pine started fading in front of the administration buildings and in the campground area. An inspection of these trees, some of which had just been felled, showed that they had been infested with the Ips or engraver beetles. The upper bole, frequently including most of the crown, had been attacked by a small species, Ips oregoni Eichh. These beetles had already matured and emerged. The lower, green portion of the bole had more recently been attacked by a large species, I. ponderosae Swaine. This species was in various stages of development in different trees, from young larvae to new adults. An old, weakened standing tree with green foliage was found just being attacked on the lower bole, although it is possible that the top was already infested with the smaller I. oregoni.

No evidence of the Black Hills beetle (Dendroctonus ponderosae Hopk.) was found. Small red pitch tubes occurred on the bark in some instances, but the galleries beneath indicated that these resulted from Ips attacks. Apparently the first beetles attacking the tree caused a slight flow of pitch, which in most cases drowned out these individuals. As large numbers of insects entered the back the flow of pitch in the weakened trees stopped and these attacks were successful.

Ips beetles are usually of secondary importance, infesting such material as fresh slash, logs, windfalls, and dying or severely weakened trees. In some instances where they multiply in slash, log decks, etc., and emerge in large numbers they will occasionally attack and kill a group of nearby green trees of sapling and small pole size. Or, if the beetles are very numerous, a few green trees may be killed at the time the beetles are attracted to the fresh cuttings. However, even under these conditions damage does not always result. Attacks by Ips on large trees usually follows the weakening of the trees by other agencies, and this appears to be the case in the Monument area at present.

The very severe drought in this region during 1936 was undoubtedly the primary or predisposing cause for the losses last season. The trees fading this spring were mostly situated in the area of heaviest use. Some were located between the road and walk, some in the edge of a fill along the new road, and others in the campground area. Human use here

was very likely a factor in reducing the vigor of these trees, in addition to last season's drought.

An examination of the Monument area three years ago, in late June 1934, showed that losses in pine timber at that time were due to Ips attacking weakened trees. Evidently the same conditions have prevailed here as observed during the last three years in the Black Hills to the east. As a result of very dry conditions in 1934 small groups of weakened trees of all sizes were killed by Ips in many localities. The spring of 1935 was wet, and Ips damage of this type disappeared due to the renewed vigor of the trees. Then followed the 1936 drought when large groups of weakened trees were attacked and killed in all parts of the hills. Most of these losses occurred on the poorer sites. Precipitation for a period this spring probably aided considerably in the recovery of weakened trees, and if normal rainfall prevails this fall and next spring the danger of damage from Ips will again subside. Evidently the Black Hills beetle has not been responsible for any of the recent killing in the Monument area. This important beetle apparently has remained in an endemic stage during the past ten years, or since control work was carried on in about 1926 when scattered infested trees were treated in Devils Tower National Monument.

No satisfactory control measures are feasible against the Ips bark beetles at this time. The more numerous I. oregoni has already left the faded trees, and no recently fading trees could be found. It is possible

that a few will show up a little later in the season, or it may be that the damage has ended. This will depend largely on the present condition of the trees. It was recommended that the green, lower portion of the bole of trees being felled, which contained broods of I. ponderosae, be peeled to destroy the developing larvae, exposing loose bark containing new adults to the hot sun to kill as many of the mature insects as possible. This procedure would reduce the population of the large species somewhat. However, it would not alleviate the situation to any great extent since the more important I. oregoni, which attacked the trees first, had already left these hosts. It was also suggested that watering a few of the most valuable mature trees in front of the administration buildings, during these dry periods, might be of some benefit. If these trees could be kept in a normal, vigorous condition at such times they would not be susceptible to Ips attacks.

L. G. BAUMHOFER,
Associate Entomologist.

cc- Dr. F. C. Craighead
Regional Office, Park Service
Custodian, Devils Tower

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